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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

YE, LIN

ART UNIT PAPER NUMBER

2612

DATE MAILED: 05/10/2004

17

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/112,786

Applicant(s)

SILVERBROOK, KIA

Examiner

Lin Ye

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION.

Response to Arguments

1. Applicant's arguments with respect to claims 1-10 and 14 filed on 3/10/04 have been considered but are moot in view of the new ground(s) of rejection.
2. Applicant's arguments filed 3/10/04 have been fully considered but they are not persuasive as to claims 11-13 and 15-20.

Relative to claim 11, the applicant argues that limitations of claim 11 clearly defines the new limitation of claim 1 that the processors are configured to exchange data as “that can selectively be configured to pass data of the sensed image directly between the processing elements via that crossbar switch”. The examiner disagrees. The limitation in the claim 11 does not claim this way and only require “ a plurality of processing elements functionally interconnected to each other via a crossbar switch”. The Gove reference clear states the crossbar switch is operative on a cycle-by-cycle basis to interconnect the various processors (See Col. 6, lines 15-17).

Claim Objections

3. Applicant is advised that should claim 4 be found allowable, claim 14 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing,

despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP 706.03(k).

Claim Rejections – 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenway et al. U.S. Patent 5,592,237 in view of Gove et al. U.S. Patent 5,768,609 and Anderson et al. U.S. Patent 5,933,137.

Referring to claim 1, the Greenway reference discloses in Figures 1 and 5, a digital camera system has an image sensor (CCD, See Col. 4, lines 28-32) for sensing an image; modification (digital video processor 30) means for modifying said sensed image in accordance with modification instructions input into said camera; and an output means for printing out (hard copy 40, Col. 4, lines 7-10) said modified image (see Col. 4, lines 41-55); Wherein said modification means (30) includes a series of processing elements (such as noise filter processor 136, subtraction circuit processor 142, Maximum OPAC 144, Histogram processor 146, Window level processor 148 and Delay line processor 150) arranged around a central crossbar switch (130) as shown in Figure 5 (See Col. 6, lines 15-35) that can selectively be configured to pass data of the sensed image directly between the processing elements via the crossbar switch (e.g., each of processors as mentioned above have a unique

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function to processing image data. In order to complete the digital image processing, the image data have to pass from each pf processors one-by-one via the crossbars switch inherently. For example, after image data is finished non-linear image enhancement transformation by a histogram processor 146, it will transfer to window/level processor 148 via the crossbar switch 130 for provding optimization and adjustment of brightness and contrast). However the reference does not explicitly show the digital image-processing section (30) is inbuilt in the digital camera system that is a hand-held digital camera.

The Gove reference discloses in Figures 1, 29, 32 and 47-53, a digital camera system (image PC) has an image sensor (CCD 4906) for sensing an image as shown in Figure 49; modification (image processor 4900) means for modifying said sensed image in accordance with modification instructions input into said camera from an inbuilt input means; and an output means for printing out said modified image (see Col. 28, lines 40-59); Wherein said modification (4900) includes a series of processing elements (a set of processors 100-103) arrange around a central crossbar switch (20) as shown in Figure 2 (See Col. 6, lines 10-24). In Figures 46-48, the imaging personal computer (PC) can be constructed of three major elements, a camera (4600), an imaging processing device (4602) and a display device 4801 (See Col. 27, lines 11-16); the imaging PC can be built into a small unit (See Col. 28, lines 19-22).

The Anderson reference discloses in Figures 1-3 and 5A-B, a hand-held digital camera (110) including an imaging device (114), a system bus (116) and a computer (118 as digital imaging processor, see Col. 4, lines 8-24).

The Gove and Anderson reference are evidence the one of ordinary skill in the art at the time to see more advantage for the modern digital cameras include an imaging device which is controlled by a built-in computer system; the built-in computer system accesses raw image data captured by the imaging device and then processes so that the whole system is more portable and compact. For that reason, it would have been obvious to see the digital image-processing section (30) is inbuilt in the digital camera system that is a hand-held digital camera disclosed by Greenway.

Referring to claims 2 and 6, the Gove reference discloses each of processor (100-103) includes Arithmetic Logic Unit (ALU) (2902) acting under the control of a microcode (instruction) store as shown in Figures 29 and 32 (See Col. 35, lines 40-45). ALU accepts a series of inputs interconnected and internal crossbar switch (20) to a series of core processing units (12) within ALU (See Col 34, lines 50-67).

Referring to claims 3 and 4, the Gove reference discloses transfer processor (11) includes an internal input and output FIFO (5701) for storing pixel data utilized by processing elements as shown in Figure 57. Processors are interconnected to read and write FIFO for reading and writing pixel data of images (See Col 58, lines 1-2). The Gove reference discloses the master processor, the parallel processors and the transfer processor as detailed in Figs 29-45 (See Col.34, lines 40-49). See Figure 29, the each processor has input (172) for loading instruction address and data into the processor and has output (171) for outputting the address and data. In order the each processor can complete to process the instruction, the each processor has FIFO interface inherently.

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Referring to claim 5, The Gove reference discloses all subject matter as discussed in respected claim 1, and the Gove reference clearly states the crossbar switch is operative on a cycle-by-cycle basis to interconnect the various processors (See Col. 6, lines 15-17 and lines 32-35), except the reference does not explicitly show that the processing elements are interconnected to form a ring in which each element is also separately connected to its nearest neighbors in addition to the crossbar switch. Official Notice is taken that both the concept and the advantages of providing a ring arrangement for processing elements are well known and expected in the art. It would have been obvious to incorporate such a design – ring arrangement in Gove is known to provide the “cycle-by-cycle” operation more efficiency and can be built into small compact unit such as a digital hand-held camera arrangement (e.g., It should be noted that the applicant does not timely traverse this official notice cited in last office action, as result that the officially noticed fact is taken to be admitted prior art).

Referring to claim 7, the Gove reference discloses each core-processing units (12) include at least one of a multiplier (2905) an adder and a barrel shifter (2910) as shown in Figure 29. It also discloses those features as shown in Figure 32 for each core-processing units.

Referring to claim 8, the Gove reference discloses each ALUs (3206 and 3226) connected number internal registers for the storage of temporary data as shown in Figure 32 (See Col. 35, lines 11-12).

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Referring to claim 9, the Gove reference discloses processing elements (100-103) are further connected to a common data bus (40) for the transfer of pixel data as shown in Figure 2 (See Col. 6, lines 32-33).

Referring to claim 10, the Gove reference discloses the data bus (171) are interconnected to a data cache (13) which acts as an intermediate cache between processing elements (100-103) and a memory (10) store for storing images as shown in Figure 2 (See Col. 6, lines 30-32).

6. Claims 11-13 and 15-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Gove et al. U.S. Patent 5,768,609.

Referring to claim 11, the Gove reference discloses in Figures 1, 29, 32 and 47-53, a digital camera system (image PC) has an image sensor (CCD 4906) for sensing an image as shown in Figure 49; modification (image processor 4900) means for modifying said sensed image in accordance with modification instructions input into said camera from an inbuilt input means; and an output means for printing out said modified image (see Col. 28, lines 40-59); Wherein said modification (4900) includes a series of processing elements (a set of processors 100-103) arranged around a central crossbar switch (20) as shown in Figure 2 (See Col. 6, lines 10-24). In Figures 46-48, the imaging personal computer (PC) can be constructed of three major elements, a camera (4600), an imaging processing device (4602) and a display device 4801 (See Col. 27, lines 11-16); the imaging PC can be built into a small unit (See Col. 28, lines 19-22). It is well known in the art at the time to see more advantages for integrating an imaging PC into a small unit such as a digital hand-held camera

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arrangement and the whole system is more portable and compact. For this reason, it would have been obvious to see the imaging PC system is a digital hand-held camera system disclosed by Gove; and means includes a plurality of processing elements functionally interconnected to each other via a crossbar switch (See Col. 6, lines 32-34 and lines 15-18).

Referring to claims 12 and 16, the Gove reference discloses each of processor (100-103) includes Arithmetic Logic Unit (ALU) (2902) acting under the control of a microcode (instruction) store as shown in Figures 29 and 32 (See Col. 35, lines 40-45). ALU accepts a series of inputs interconnected and internal crossbar switch (20) to a series of core processing units (12) within ALU (See Col 34, lines 50-67).

Referring to claim 13, the Gove reference discloses all subject matter as discussed with respected to same comment as with claim 3.

Referring to claim 14, the Gove reference discloses all subject matter as discussed with respected to same comment as with claim 4.

Referring to claim 15, the Gove reference discloses all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 16, the Gove reference discloses all subject matter as discussed with respected to same comment as with claim 6.

Referring to claim 17, the Gove reference discloses all subject matter as discussed with respected to same comment as with claim 7.

Referring to claim 18, the Gove reference discloses all subject matter as discussed with respected to same comment as with claim 8.

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Referring to claim 19, the Gove reference discloses all subject matter as discussed with respected to same comment as with claim 9.

Referring to claim 20, the Gove reference discloses all subject matter as discussed with respected to same comment as with claim 10.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Lin Ye** whose telephone number is **(703) 305-3250**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R Garber can be reached on **(703) 305-4929**.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks


Washington, DC. 20231

Or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive,
Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Technology Center 2600 Customer Service Office whose telephone
number is (703) 306-0377.


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Lin Ye
April 19, 2004